



1600

Does Not Comply
Corrected Diskette Needed

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/545,199F

DATE: 07/17/2002

TIME: 14:22:28

Input Set : A:\6227NCP.txt

Output Set: N:\CRF3\07172002\I545199F.raw

4 <110> APPLICANT: Lowery E., David
5 Fuller E., Troy
6 Kennedy J., Michael
8 <120> TITLE OF INVENTION: Anti-Bacterial Vaccine Compositions
10 <130> FILE REFERENCE: 28341/6227.NCP
12 <140> CURRENT APPLICATION NUMBER: 09/545,199F
13 <141> CURRENT FILING DATE: 2000-04-06
15 <150> PRIOR APPLICATION NUMBER: 60/153,453
16 <151> PRIOR FILING DATE: 1999-09-10
18 <150> PRIOR APPLICATION NUMBER: 60/128,689
19 <151> PRIOR FILING DATE: 1999-04-09
21 <160> NUMBER OF SEQ ID NOS: 165
23 <170> SOFTWARE: PatentIn Ver. 2.0

ERRORED SEQUENCES

1994 <210> SEQ ID NO: 16
1995 <211> LENGTH: 2110
1996 <212> TYPE: PRT
1997 <213> ORGANISM: Pasteurella multocida
1999 <400> SEQUENCE: 16
2000 Met Gln Pro Ala Gln Glu His Cys Gln Arg Ile Asn Asn Ile Val Asn
2001 1 5 10 15
2003 Gln Glu Asn Gly Leu Phe His Thr Leu Gly Asn Met Met Leu Glu Ala
2004 20 25 30
2006 Glu Arg Ser Val Tyr Asn Ile Gly Asp Ile Tyr Ala Ser Lys Lys Leu
2007 35 40 45
2009 Thr Val His Thr His Asn Leu Ile Asn Asp Val Arg Leu Ser Gly Asn
2010 50 55 60
2012 Val Ser Tyr Lys Pro Ile Gly Ser Ser Arg Asp Tyr Asp Ile Ser Arg
2013 65 70 75 80
2015 Val Ala Val His Gly Trp His Asn Asn Val Tyr Lys Leu Asn Leu Asn
2016 85 90 95
2018 Leu Gln Glu Gln Asp Lys Thr Asp Ile Lys Val Val Lys Met Gly Ala
2019 100 105 110
2021 Ile Arg Ser Asp Gly Asp Phe Asp Phe Lys Gly Ile Lys Ala Thr Ser
2022 115 120 125
2024 Ser Glu Ser Lys Pro Gln Leu Ile Asn His Gly Leu Ile Asn Val Lys
2025 130 135 140
2028 Gly Thr Phe Asn Ala Glu Ala Asp Gln Val Val Asn Gln Met Lys Ala
2029 145 150 155 160
2031 Phe Asn Gln Asn Ala Leu Ala Ser Val Phe Lys Asn Pro Ala Lys Ile

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2032          165          170          175
2034 Thr Met Tyr Tyr Gln Pro Leu Thr Arg Tyr Ile Trp Thr Pro Leu Ser
2035          180          185          190
2037 Gly Asn Ala Ser Arg Glu Phe Asn Asn Leu Glu Ser Phe Leu Asp Ala
2038          195          200          205
2040 Leu Phe Gly Ser Thr Thr Ile Leu Lys Ser Ser Phe Tyr Ser Thr Glu
2041          210          215          220
2043 Asn Phe Ser Ala Tyr Gln Leu Leu Ser His Ile Gln His Ser Pro Met
2044 225          230          235          240
2046 Tyr Gln Lys Ala Met Ala Gln Val Phe Gly Ala Glu Trp His Ser Lys
2047          245          250          255
2049 Ser Tyr Asp Glu Met Arg Asn Lys Trp Lys Ser Phe Lys Glu Asn Pro
2050          260          265          270
2052 Thr Asp Phe Ile Tyr Tyr Pro Ser Glu Lys Ala Lys Ile Leu Ala Gly
2053          275          280          285
2055 Lys Leu Glu Gly Lys Leu Thr Thr Leu Gln Asn Gly Glu Tyr Ala Glu
2056          290          295          300
2058 Arg Gly Lys Phe Asp Glu Ser Ile Gln Ile Gly Lys His Gln Leu Ser
2059 305          310          315          320
2061 Leu Pro Ser Val Glu Leu Lys Ala Glu Phe Ser Asp Lys Glu Arg Leu
2062          325          330          335
2064 Glu Glu Asp Gly Val Asp Leu Ser Ser Ile Ala Glu Leu Leu Glu Met
2065          340          345          350
2067 Pro Asn Leu Phe Ile Asp Asn Ser Ile Gln Leu Glu Lys Lys Lys Leu
2068          355          360          365
2070 Ser Pro Ile Glu Asp Leu Asp Glu Glu Pro Arg Lys Asn Leu Asp Ile
2071          370          375          380
2073 Glu Glu Ser His Ser Asn Ser Ser Asp Asp Val Leu Ser Met Asn Asp
2074 385          390          395          400
2076 Asp Glu Ser Asp Thr Asp Asp Ser Lys Trp Ser Met Gly Asn Asp Glu
2077          405          410          415
2079 Lys Glu Met Pro Asp Asp Lys Leu Gly Ile Ser Arg Asp Asp Arg Gly
2080          420          425          430
2082 Asn Lys Pro Pro Arg Thr Asp Pro Thr Val Asp Tyr Leu Asn Pro Asp
2083          435          440          445
2085 Glu Phe Phe Glu Asn Gly Tyr Leu Leu Asn Glu Leu Leu Gln Glu Leu
2086          450          455          460
2089 Gly Glu Glu Pro Leu Leu Lys Glu Gly Glu Asp His Phe Lys Arg Ser
2090 465          470          475          480
2092 Thr Asn Leu Val Arg Leu Gly Glu Arg Asp Arg Gln Asn Arg Glu Lys
2093          485          490          495
2095 Arg Glu Lys Glu Gly Tyr Phe Asp Leu Pro Gly Thr Leu Asp Met Lys
2096          500          505          510
2098 Leu Gln Glu Leu Phe Glu Lys Arg Lys Gln Lys His Glu Ala Glu Gln
2099          515          520          525
2101 Lys Ala Arg Ile Glu Lys Ala Leu Leu Gln Lys Ser Glu Gln Gln Glu
2102          530          535          540
2104 Lys Arg Val Glu Glu Arg Lys Gln Glu Glu Lys Arg Gln Ala Gln Asp
2105 545          550          555          560

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```

2107 Lys Ile Ala Lys Gln Val Glu Ile Ala Lys Glu Met Gln Arg Val Glu
2108                               565                               570                               575
2110 Glu Ile Arg Gln Arg Glu Lys Gln Leu Ala Ile Gln Leu Gln Glu Glu
2111                               580                               585                               590
2113 Glu Lys Lys Gln Gln Glu Glu Lys His Leu Ser Glu Glu Lys Lys Gln
2114                               595                               600                               605
2116 Ala Glu Gln Lys Gln Lys Ala Glu Glu Lys Val Ala Gln Glu Arg Leu
2117                               610                               615                               620
2119 Asp Ile Glu Gln Gln Lys Ala Tyr Glu Glu Met Ala Lys Arg Glu Ala
2120 625                               630                               635                               640
2122 Glu Ala Ser Lys Asn Val Leu Leu Lys Ala Ile Asp Glu Glu Arg Pro
2123                               645                               650                               655
2125 Lys Val Glu Thr Asp Pro Leu Phe Arg Thr Lys Leu Lys Tyr Ile Asn
2126                               660                               665                               670
2128 Gln Asp Asp Tyr Ala Gly Ala Asn Tyr Phe Phe Asn Lys Val Gly Leu
2129                               675                               680                               685
2131 Asn Thr Lys Gly His Gln Lys Val Asn Val Leu Gly Asp Asn Tyr Phe
2132 690                               695                               700
2134 Asp His Gln Val Ile Thr Arg Ser Ile Glu Lys Lys Val Asp Asn His
2135 705                               710                               715                               720
2137 Leu Asn Gln Lys Tyr Asn Leu Ser Asp Val Glu Leu Val Lys Gln Leu
2138                               725                               730                               735
2140 Met Asp Asn Ser Thr Thr Gln Ala Gln Glu Leu Asp Leu Lys Leu Gly
2141                               740                               745                               750
2143 Ala Ala Leu Thr Lys Glu Gln Gln Ala Asn Leu Thr Gln Asp Ile Val
2144                               755                               760                               765
2146 Trp Tyr Val Lys Thr Lys Val Lys Gly Lys Asp Val Phe Val Pro Lys
2147                               770                               775                               780
2150 Val Tyr Phe Ala Ser Glu Thr Leu Val Glu Ala Gln Lys Leu Gln Gly
2151 785                               790                               795                               800
2153 Leu Gly Thr Gly Thr Ile Arg Val Gly Glu Ala Lys Ile Lys Ala Lys
2154                               805                               810                               815
2156 Asp Val Val Asn Thr Gly Thr Leu Ala Gly Arg Lys Leu Asn Val Glu
2157                               820                               825                               830
2159 Ala Ser Asn Lys Ile Lys Asn Gln Gly Ser Ile Leu Ser Thr Gln Glu
2160                               835                               840                               845
2162 Thr Arg Leu Val Gly Arg Lys Gly Ile Glu Asn Val Ser Arg Ser Phe
2163                               850                               855                               860
2165 Ala Asn Asp Glu Leu Gly Val Thr Ala Gln Arg Ser Glu Ile Lys Thr
2166 865                               870                               875                               880
2168 Glu Gly His Leu His Leu Glu Thr Asp Lys Asp Ser Thr Ile Asp Val
2169                               885                               890                               895
2171 Gln Ala Ser Asp Ile Lys Ala Lys Thr Ser Phe Val Lys Thr Gly Asp
2172                               900                               905                               910
2174 Val Asn Leu Lys Asn Thr Tyr Asn Thr Lys His Ala Tyr Arg Glu Lys
2175                               915                               920                               925
2177 Phe Ser Pro Ser Ala Leu Gln Val Ala Glu Leu Asp Val Ala Gly Leu
2178                               930                               935                               940
2180 Lys Val Pro Leu Leu Gly Val Ser Ser Pro Ser Ser Tyr Ser Glu His

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2181 945          950          955          960
2183 Thr Ser Glu Ala Thr Ser Glu Gly Ser Ile Phe Glu Val Gly His Leu
2184          965          970          975
2186 His Leu Ala Val Asp Arg Asp Val Asn Gln Ala Gly Ser Lys Ile Lys
2187          980          985          990
2189 Ala Lys Tyr Thr Thr Gly Val Val Lys Gly Asn Phe Asn Thr Glu Ala
2190          995          1000          1005
2192 Gly Lys Asn Ile Lys His Val Glu Lys Glu Glu Tyr Ser Ser Gln Leu
2193          1010          1015          1020
2195 Phe Ala Ser Ala His Ala Ser Gly Gly Gly Thr Ser Val Arg Tyr Asp
2196 1025          1030          1035          1040
2198 Tyr Asn Ser Gln Asp Gly Gly Asn Ala Ser Val Gly Val Pro Thr Asn
2199          1045          1050          1055
2201 His Thr Gly Val Gly Ala Glu Ala Gly Met Ser Phe Thr His Thr Lys
2202          1060          1065          1070
2204 Asp Lys Glu Thr Leu Leu Thr His Thr Asn Ser Glu Leu Gln Val Lys
2205          1075          1080          1085
2207 His Gly Lys Leu His Val Leu Gly Tyr Ala Asp Ile Gly Gly Val Asp
2208 1090          1095          1100
2211 Ile Asn Thr Lys Leu Pro Glu Asp Ala Gln Ser Lys Ala Gln Lys Glu
2212 1105          1110          1115          1120
2214 Ile Ala Ala Ser Lys Pro Glu Lys Thr Glu Gln Ser Ala Gln Asp Val
2215          1125          1130          1135
2217 Ala Gln Ala Gln Ser Asn Ala Asn Lys Asp Lys Glu Asn Lys Ala Pro
2218          1140          1145          1150
2220 Glu Ile Lys Glu Leu Ser Glu Ala Glu Ile Ala Asp Leu Met Ser Glu
2221          1155          1160          1165
2223 Lys Ser Lys Ala Tyr Phe Asp Asp Phe Ala Glu Gln Ala Lys Lys Ala
2224          1170          1175          1180
2226 Pro Glu Asn Asn Arg Phe Glu Leu Ser Ala Lys Glu Ile Lys Ser Ser
2227 1185          1190          1195          1200
2229 Lys Gln Lys Asp Gln Tyr Asp His Glu Ser Glu Arg Thr Thr Phe Lys
2230          1205          1210          1215
2233 Val Gly Pro Glu Ala Glu Ala His Ser Ala Val Ala Asp Met Val Ser
2234          1220          1225          1230
2236 His Leu Val Lys Glu Tyr Arg Asp Ala Gln Asn Gly Thr Lys Gln Asp
2237          1235          1240          1245
2239 Gly Thr Val Ala Leu Gln His Ala Ser Asp Val Leu Asn Ile Val Thr
2240          1250          1255          1260
2242 Gly Asp Leu Ala Gly Ser Ser Ala Lys Leu Ser Val Glu Arg Thr His
2243 1265          1270          1275          1280
2245 Glu Thr Lys Arg Thr Thr Glu Thr Gly Asp Ile Val Thr Lys Ile Gly
2246          1285          1290          1295
2248 Gly Asn Val Thr Leu Ser Ala Arg Ser Gly Ser Val Asn Leu Lys Asn
2249          1300          1305          1310
2251 Val Gln Ser Asp Glu Gln Ala Asn Leu Thr Leu Arg Ala Lys Glu Asp
2252          1315          1320          1325
2254 Val Asn Val Leu Ser Gly Glu Lys Thr Arg Glu Thr Thr Glu Thr Val
2255          1330          1335          1340

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2257 Ser Arg Gln Lys Leu Ser His Gly Val Asn Ala Gly Cys Ser Met Met
2258 1345          1350          1355          1360
2260 Ser Gly Ala Cys Thr Ala Gly Val Ser Thr Ser Leu Glu Gly Asn Glu
2261          1365          1370          1375
2263 Ser Tyr Thr Ser Glu Arg Glu Thr Ala Gln Asn Asn Ser Phe Leu Lys
2264          1380          1385          1390
2266 Ala Arg Asn Met Lys Val Glu Ala Gly Arg Asp Phe Asn Val Val Ser
2267          1395          1400          1405
2269 Ser Asn Ile Asp Ala Asp Lys Leu Asp Leu His Val Lys Gly Lys Thr
E--> 2270 1410          1415          1420
2272 Asn Val Val Ser Lys Gln Asp Thr Leu Gln Lys Val Thr His Gly Val
E--> 2273 1425          1430          1435          1440
2275 Asp Tyr Asn Leu Ser Ala Gly Val Ala Leu Ser Ser Ala Thr Ile Ala
E--> 2276          1445          1450          1455
2278 Thr Pro Thr Gly Asn Val Gly Phe Gly Tyr Thr Asn Glu Thr Glu Ser
E--> 2279          1460          1465          1470
2281 Lys Arg Thr Val Asn Gln Gln Ala Gly Ile Lys Ala Asn Lys Ile Thr
E--> 2282          1475          1480          1485
2284 Gly Gln Thr His Asp Leu Asn Leu Glu Gly Gly Tyr Leu Val Ser Asn
E--> 2285          1490          1495          1500
2287 Asp Lys Asp Asn Gln Leu Lys Val Thr Gly Asp Val Thr Thr Lys Ala
E--> 2288 1505          1510          1515          1520
2290 Leu His Asp Gln His Asp Lys Asp Gly Gly Thr Phe Gly Leu Ser Val
E--> 2291          1525          1530          1535
2293 Gly Ile Ser Glu Arg Gly Thr Thr Ala Phe Asn Val Arg Gly Gly Arg
E--> 2294          1540          1545          1550
2296 Ala Glu Gln Lys His Tyr Asn Ala Thr Gln Lys Ser Thr Leu Ser Gly
E--> 2297          1555          1560          1565
2299 Val Asp Thr Ser Gln Ala Asn Val Ser Gly Gln Val Asn Thr Asp Leu
E--> 2300          1570          1575          1580
2302 Thr Lys Ala Lys Ala Val Thr Arg Asp Asp Thr Tyr Ala Ser Thr Gln
E--> 2303 1585          1590          1595          1600
2305 Phe Ser Phe Glu Val Ala Asp Ile Val Glu Leu Gly Gln Arg Ala Lys
E--> 2306          1605          1610          1615
2308 Asn Lys Leu Ser Ala Pro Asn Asn Asp Thr Asp Met Ala Ser Gly Ser
E--> 2309          1620          1625          1630
2311 Thr Leu Arg Ser Arg Ser Thr Thr Glu Ala Asp Val Pro Thr Thr
E--> 2312          1635          1640          1645
2314 Arg Ser Arg Val Thr Asp Glu Ala Asp Ser Val Ser Val Lys Asn Pro
E--> 2315          1650          1655          1660
2317 Ile Tyr Glu Ser Ala Asp Ala Val Val Pro Thr Pro Arg Ser Arg Asn
E--> 2318 1665          1670          1675          1680
2320 Val Asp Ser Thr Asp Leu Val Asp Asn Pro Leu Tyr Ala Ser Ala Thr
E--> 2321          1685          1690          1695
2323 Thr Lys Ala Asn Ile His Asp Tyr Glu Glu Ile Pro Ala Val Tyr Ser
E--> 2324          1700          1705          1710
2326 Lys Val Gly Asp Asn Asn Ala Asp Leu Val Arg His Lys Thr Ala Thr
E--> 2327          1715          1720          1725
2329 Ser Asp Glu His Leu Tyr Ala Glu Ile Asn Glu Pro Thr Tyr Ser Arg

```

amino numbers by
misaligned

- move to the left one
space, so that the last
digit aligns with the
right margin (last
letter of amino
acid)

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E--> 2330      1730      1735      1740
      2333 Val Gly Asp Lys Asn Ala Asp Met Arg Arg His Asn Ala Ala Gly Thr
E--> 2334 1745      1750      1755      1760
      2336 Thr Asp Tyr Ala Asp Val Val Gln Ala His Thr Arg Lys Ala Asp Asp
E--> 2337      1765      1770      1775
      2339 Pro Leu Pro Ala Leu Pro Asn Gln Gly Lys Ala Arg Thr Val Asn Asp
E--> 2340      1780      1785      1790
      2342 Gly Ser Glu His Ile Tyr Thr Asp Ile Ser Asp Val Gly Thr Gln Thr
E--> 2343      1795      1800      1805
      2345 Lys Ala Ile Asp Ser Thr Tyr Ala Thr Val Gly Met Pro Lys Ala Asn
E--> 2346      1810      1815      1820
      2348 Ala Val Asn Leu Ile Gly Gln Asn Gly Leu Gly Ser Ile Tyr His Ser
E--> 2349 1825      1830      1835      1840
      2351 Pro Asp Ser Ala Tyr Lys Thr Trp Gln Leu Leu Asp Gln Phe Ala Asn
E--> 2352      1845      1850      1855
      2354 Lys Gly Gly Asp Ala Val Phe Leu Arg Pro Ala Thr Glu Met Lys Cys
E--> 2355      1860      1865      1870
      2358 Ala Gly Ala Pro Leu Lys Tyr Thr Phe Ile Val Arg Asp Tyr Leu Leu
E--> 2359      1875      1880      1885
      2361 Arg Arg His Thr Leu Asp Lys Ser Arg Leu Phe Tyr Asn Ala His Asn
E--> 2362      1890      1895      1900
      2364 Lys Thr Leu Phe Ser Val Pro Ile Val Asp Ala Lys Val Lys Met Leu
E--> 2365 1905      1910      1915      1920
      2367 Phe Ala Glu Lys Asn Ile Gln Val Asn Tyr Asp Arg Ser Leu Thr Ala
E--> 2368      1925      1930      1935
      2370 Ile Asp Leu Ser Lys Arg Ile Ala Thr Phe Asn Ser Pro Glu Gly Val
E--> 2371      1940      1945      1950
      2373 Val Glu Val Pro Tyr Asp Phe Ile Asn Val Val Pro Pro Met Arg Ala
E--> 2374      1955      1960      1965
      2376 Pro Asp Ala Val Arg Gln Ser Ala Leu Ala Trp Gln Glu Gly Lys Trp
E--> 2377      1970      1975      1980
      2379 Ala Asn Asp Gly Trp Val Glu Val Glu Lys His Thr Leu Arg His Arg
E--> 2380 1985      1990      1995      2000
      2382 Arg Tyr Ala Asn Val Phe Ala Val Gly Asp Val Ala Gly Val Pro Lys
E--> 2383      2005      2010      2015
      2385 Gly Lys Thr Ala Ala Ser Val Lys Trp Gln Val Pro Val Ala Val Ala
E--> 2386      2020      2025      2030
      2388 His Leu Leu Ala Glu Leu Glu Gly Lys Pro Cys Asp Glu Ile Tyr Asn
E--> 2389      2035      2040      2045
      2391 Gly Tyr Thr Ser Cys Pro Leu Ile Thr Gln Leu Gly Lys Gly Met Leu
E--> 2392      2050      2055      2060
      2394 Val Glu Phe Asp Tyr Asn Asn His Leu Thr Pro Ser Phe Pro Gly Val
E--> 2395 2065      2070      2075      2080
      2397 Ile Ala Pro Leu Glu Glu Leu Trp Ala Thr Trp Ala Ile Lys Thr Leu
E--> 2398      2085      2090      2095
      2400 Gly Leu Lys Pro Thr Tyr Leu Gly Met Leu Arg Gly Leu Ala
E--> 2401      2100      2105      2110

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L:129 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:1061
L:2270 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:16
M:332 Repeated in SeqNo=16
L:3841 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:337
L:3842 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:385
L:3845 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:385
L:3846 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:433
L:3849 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:433
L:3850 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:481
L:3981 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:112
L:3984 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:128
L:3987 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:144
L:5416 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:975
L:5417 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:1023
L:5428 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:1119
L:5429 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:1167
L:5444 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:1390
L:5452 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:1630
L:5526 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:208
L:5529 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:224
L:5535 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:256
L:5538 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:272
L:5612 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:97
L:5613 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:145
L:5628 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:289
L:5629 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:337
L:5661 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:889
L:5663 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:949
L:5689 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:1729
L:5691 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:1789
L:5728 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:32
L:5740 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:96
L:5858 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39 after pos.:1806
L:6790 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:47 after pos.:3076
L:9359 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:72 after pos.:420
L:11243 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:90 after pos.:0
L:11245 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:90 after pos.:60
L:11978 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:102 after pos.:4848
L:11979 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:102 after pos.:4896
L:12306 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:103 after pos.:1616